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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Krassen Dimitrov

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41552

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08/07/2006

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EXAMINER

CHUNDURU, SURYAPRABHA

ART UNIT

PAPER NUMBER

1637

DATE MAILED: 08/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/898,743

**Applicant(s)**

DIMITROV, KRASSEN

**Examiner**

Suryaprabha Chunduru

**Art Unit**

1637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 90-178 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 90-178 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

1. Applicants' response to the office action filed on June 13, 2006 has been entered.

***Status of the Application***

2. Claims 90-178 are considered for examination. New claim 178 is added. All amendments and arguments have been thoroughly reviewed and deemed persuasive in view of arguments.

This action is made Non-Final.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 90-178 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oprandy (US 5,679,519) in view of Segev (EP 0 292 128).

Oprandy teaches claim 90-178, a multi-labeled probe complex comprising a platform molecule carrying a plurality of labels comprising plurality of genedigits, each genedigit being a predetermined sequence (oligonucleotides) wherein gene digit is attached to an anti-gene digit (complementary sequences or oligonucleotide probe sequences)(see col.4, line 28-34, col. 6, line, 20-47).

With regard to claim 90, Oprandy teaches that said population is in solution (see col. 12, line 15-58);

With regard to claim 95-120, 158, 166-167, Oprandy teaches that each molecule is DNA comprising target specific nucleic acid sequence (see col. 7, line 55-65);

With regard to claims 92, 96, 99, 106, 113-120, 123, Oprandy teach that the molecule is attached to a target molecule noncovalently via hybridization (see col. 7, line 50-65);

With regard to claim 92, 99, Oprandy teaches that said population comprises bridging nucleic acid (linking oligonucleotides) (see col. 9, line 10-25, Fig. 6);

With regard to claim 124-127, Oprandy teaches that the diverse population comprises genedigits with two or more different sequences (see col. 7, line 50-54)

With regard to claim 90-129, 136-137, 153-155, 150-160, Oprandy teaches that said population of molecules comprise label monomers (see col. 6, line 34-57);

With regard to claim 130, Oprandy teaches that said unique labels comprise mixture of two or more different labels (see col. 6, line 34-47).

With regard to claim 132, 151, 161, Oprandy teaches said labels comprise quantam dot (see col. 4, line 66-67, col. 5, line 1-7 ).

With regard to claim 133-135, 162-164, Oprandy teaches that diverse population further comprises a specifier, a dendrimer of a fork-like or comb-like (see Fig. 6);

With regard to claims 81, 85, 88-89, Oprandy teaches that the diverse population of labels comprise label monomers (oligonulceotides) and the label monomers are combined at different ratios (see col. 7, line 16-21col. 10, line 23-29);

With regard to claims 135-141, 156, 178, Oprandy teaches that said target is attached to a chip or microarray (solid paltform) (see col.5, line 33-41);

Although Oprandy teaches two or more label monomers, Oprandy did not specifically teach a diverse population of labels comprising thirty or more.

Segev teaches labeled DNA molecules with multiple fluorescent signals (reporter groups) wherein Segev discloses that unique labels or dyes comprise an array bearing  $2^{n-1}$  reporter groups having unique emission spectra (see page 5, line 36-49).

It would have been prima facie obvious to a person of ordinary skill in the art at the time the invention was made, to combine the diverse population of molecules comprising genedigits and anti genedigits as taught by Oprandy with an inclusion of array of labels as taught by Segev to develop a sensitive and improved population of molecules with distinct labels. An ordinary artisan would have had a reasonable expectation of success that such modification of the method taught by Oprandy in a manner as taught by Segev because Segev explicitly taught that use of a mixture of unique labeled probes provide increased signal strength and greatly increased target molecule detection signal (see page 5, line 36-49) and such modification of the method is considered obvious over the cited prior art in the absence of secondary considerations.

***Response to arguments:***

4. With regard to the rejections under 35 USC 103(a) as being unpatentable over Mirkin et al., in view of Chandler Applicants' arguments are fully considered and found persuasive. The rejection is withdrawn herein in view of the new grounds of rejections.

***Conclusion***

No claims are allowable.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Suryaprabha Chunduru whose telephone number is 571-272-0783. The examiner can normally be reached on 8.30A.M. - 4.30P.M , Mon - Friday,.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on 571-272-0782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Suryaprabha Chunduru  
Primary Examiner  
Art Unit 1637

*Suryaprabha Chunduru*  
SURYAPRABHA CHUNDURU 8/3/06  
PATENT EXAMINER